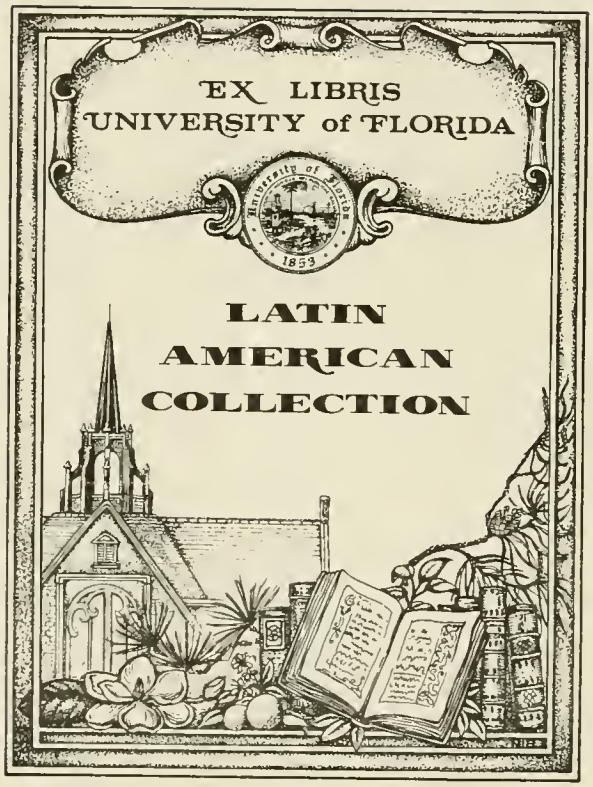
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THE PANAMA CANAL
REVIEW
WINTER 1978

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Panama Canal Information Officer

THE PANAMA CANAL
REVIEW
WINTER 1978

Official Panama Canal Publication

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In This Issue

VISITORS TO THE PANAMA Canal cannot help but be impressed with the constant hum of activity that surrounds the waterway. The Canal never sleeps. Ships transit day and night, requiring the presence of a qualified workforce both to operate the waterway and to maintain it.

This edition of the PANAMA CANAL REVIEW salutes those thousands of employees directly involved in the task of maintaining the Canal. Their jobs range in scope from changing a lightbulb in a lighted buoy to designing plans for an improved locomotive turntable. But each task is essential to providing smooth and continuous service to Canal customers.

Equally important to the operation of the Canal is the preservation of the Gatun Lake watershed. Current problems resulting from deforestation of the watershed are examined in this issue, and the accompanying aerial photographs provide graphic evidence of their existence.

A Christmas issue would not be complete without stories reminding us of the delights of this season of the year. A tale about toys will bring back nostalgic remembrances of days gone by for some readers, while others will relish the recipes for a Christmas dinner that feature delicacies available locally. The issue is rounded out with a story on Stevens Circle, a meeting place for Canal Zone people at any time of the year.

Special thanks go to Mel Kennedy of the Panama Canal Graphics Branch for designing the cover and for his professional guidance in the selection of many of the photographs that appear in this edition of the REVIEW. Other photographers whose work is included are Arthur L. Pollack, Don Goode, Kevin Jenkins, and Alberto Acevedo, all of the Graphics Branch; and Ron Jakaitis of the Dredging Division.

On The Cover

THE DEWATERED CHAMBER at Gatun Locks featured on the front cover is the scene of locks overhaul. The back cover shows the same chamber alive with the activity of vessels in transit. Inside the front cover, passengers on the deck of a transiting cruise ship get an opportunity to see the floating crane *Hercules* lift a giant miter gate off its pintles for transfer to a drydock for overhaul.

Maintaining the Waterway:

Dedicated Workforce

Key To Canal's Success

By Vicki Boatwright

THE PANAMA CANAL CELebrated its 64th birthday in August. By that age most employees of the Canal organization have retired, begun to take life at a slower pace.

But the works of man's genius are meant to outlive man himself, and the Panama Canal is no exception. It is today, as in 1914, a viable, efficient structure still essential to the flow of world commerce.

The fact that this is so is a tribute to two groups of people: first, to the designers of the Canal whose foresight in planning the construction of the waterway paved the way for its adaptation to meeting present day needs. Its simple, functional design has lent itself to improvements in both the physical structure of the Canal and the techniques used in maintaining it. The widening and deepening of the channel to accommodate increased traffic and larger vessels, the bank lighting through Gaillard Cut which allows 'round the-clock operation, and the development of engineering techniques for overhauling valves without dewatering the locks chambers are a few of the changes that were possible within the framework of the original plan for the waterway.

Second, it is a tribute to those who through the years and to the present keep the waterway in top running condition. To these people, the Panama Canal is a living organism, worthy of their respect and relying upon their skills and their dedication for its continued existence.

It is to this group of people, the employees who perform the thousands of jobs necessary to keeping the Panama Canal open year round to ship traffic that this story is dedicated.

Chamber work: A caisson holds back the flow of water as Maintenance Division employees break out the old concrete locks sill. The sill will be restored while the miter gates are out for overhaul.

A better way: Left, the pouring of molten babbitt into the hollow quoin bearing plates at the juncture at which the miter gate meets the lock wall, was once accomplished by lifting workmen in a basket and lowering containers of babbitt to them. Today the workmen and a container carrying enough of the 650°F metal to complete the whole are raised at one time on a platform, a faster way to accomplish the task. Below: A brand new 900-pound pintle ball, which the miter gate rotates, is eased into place, one of the last jobs to be done before the chamber is flooded and the gates floated back into position.

Keeping the waterway in shape is a multi-million dollar a year business. It involves the combined efforts of every operating division within the Canal organization. The scope of the work is staggering. It encompasses such diverse activities as the maintenance and repair of the physical structure of the locks; the continuous dredging of channels, harbors, anchorages and piers; the surveillance of the stability of the banks of the Canal; the maintenance of a system of aids to navigation; the treatment of aquatic vegetation encroaching in the channels; and the maintenance of the dams and spillways that control the level of the lakes.

Engineers, mechanics, machinists, electricians, riggers, heavy equipment operators, carpenters, painters, marine traffic schedulers and control house operators are but a few of the people involved in the maintenance of the Canal. Some of what they do is scheduled work, planned and budgeted for well in advance. Concurrent with that work are tasks that must be tackled because a need has arisen or an emergency has occurred. The workforce of the Panama Canal is capable of handling it all.

Locks Overhaul Is Planned Maintenance

Perhaps the most visible example of planned maintenance done to the waterway is the annual locks overhaul. Scheduled 7 years in advance, the work is accomplished during the dry season months of January through April. During overhaul, the manpower and equipment of many divisions are deployed to get the job done in the allotted amount of time. The workforces of the Locks, Industrial, Dredging, Engineering and Maintenance Divisions and Marine Traffic Control are among those that work in concert to see that the overhaul is completed without disruption of Canal service.

One of the most dramatic tasks performed during overhaul is the restoration of the giant miter gates. Each pair of the 44 pairs of operating miter gates in the Panama Canal—88 gates leaves—is scheduled for a thorough overhaul on a 25 to 30 year cycle. The gate and its components are removed, inspected and reconditioned and the gate is returned to service in top working condition.

For many years miter gates were overhauled in place, requiring long lane outages while the work was done. Then in 1965 a new method was developed which involved lifting the gates off their pintles, or pivots, and floating them to drydock for repair. This method requires that the lane be out of service for only 2 days, 1 day to remove the gates and 1 to return them to position.

Each gate leaf is 65 feet 7 inches wide and 7 feet thick. They range in height, depending on their location, from 47 feet 4 inches to 82 feet and in gross weight from 440 to 770 tons. The Dredging Division's giant crane *Hercules* is the only piece of Canal equipment able to move the gates to a horizontal position.

But the lifting capacity of the *Hercules* is only 250 tons. In order to raise even the lightest gate, the gate must first be made buoyant. Air is pumped into the flotation chambers built into each gate—again, an act of foresight in the original design—and the chamber is flooded. Locks locomotives steady the crane as it tilts the gate leaf to free it from the yolk at the top and lift it off the pintle ball on the floor of the chamber.

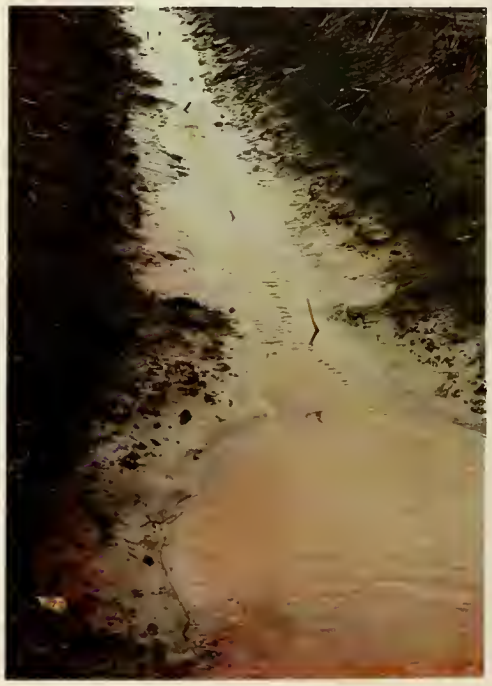
Once the gates are in the drydock, the real work begins. The pintle casting, which serves as the pivot point for the leaf, is removed and shipped to the Industrial Division headquarters in Mount Hope to be overhauled. Then the bearing plates, which form a perfect water-tight seal between the leaves and the side of the chamber and between leaves themselves, are blasted off and the lead alloy behind them, called babbitt, is removed. New bearing plates precisely aligned within 5/1000 of an inch tolerance are installed, and the space behind them is filled with molten babbitt heated to a temperature of 650 degrees.

At the same time that the major components of the gate are being worked on, scraping and painting crews do their job on the entire surface of the leaf. Workmen also go inside the gates to clean out any silt and debris that may have accumulated there.

When the drydock work is completed and has been inspected and passed by locks overhaul engineers, the giant leaves are filled with air and floated back to their place in one of the sets of locks.

But before the gates can be replaced much work must be done within the chamber. In order for work crews to have full access to the locks walls, the chamber floor and the concrete sills against which the closed gate leaves rest, the chamber is dewatered for a period of 96 hours. Engineers plan the work hour by hour, and each operation must be coordinated with the greatest precision so that every step is com-

Explosive ditching at Velasquez spoil dump on the west bank of the Canal: Above, an aerial view of the 260 acres of drainage ditches dug with dynamite; at left, Dredging Division blasting crew sets the charges in 500 foot strings; lower left, the red flag is down, fire in the hole; bottom right, a ditch created without machinery.



pleted on target. At the same time, Marine Traffic controllers schedule relay lockages to prevent a large backlog of ships.

With the gate removed, work crews have access to the hollow quoin plates, the area where the gate meets the locks wall; to the pintle ball and its assembly on which the lower end of the gate pivots; and to the yoke which supports the upper end. Each of these is reworked and restored to fit the exact specifications of the newly overhauled gates. In addition, with the chamber drained the concrete gate sill can be inspected and, if necessary, repaired. At every step of the way the engineers must monitor and check the work to insure that when the gates are replaced every component will align properly.

The maintenance of the miter gates is only one phase of a locks overhaul and only one example of scheduled maintenance. But like the dozens of other projects accomplished yearly, it demands the combined effort of many divisions of the Panama Canal Company to see the work sucessfully completed.

Innovation the Key To Today's Problems

While our forefathers designed for the future, problems have arisen since 1914 that they could not have been expected to anticipate. These problems require an innovative response on the part of those whose job it is today to operate and maintain the waterway. Such a response was rendered this year by Canal employees on the problem of diminishing space for dredging spoil.

The regular removal of the accumulation of silt and debris from Canal channels in order to maintain them at a navigable depth is a continuous job. After more than 60 years of such dredging, the space set aside for spoil disposal was filled almost to capacity. Without the possibility of developing new sites, the solution rested in making more space in the areas that already exist.

But the question of how to accomplish that was a difficult one. The nature of the spoil material itself was a limiting factor. Dredging spoil is composed of a small percentage of small rock that settles out and dries quickly. The largest portion is a fine textured silt with a high degree of water retention. This material may hold its water content for years, preventing the silt from consolidating to a smaller volume. Added to that is the effect of the hot tropic sun which acts on the surface of the deposited silt to form a crust which serves to contain the water content beneath it by preventing further evaporation. What was needed was a system of drainage ditches that would remove the contained water and allow the fine silt to consolidate.

The nature of the spoil, however, made it impossible to use excavation machinery for this purpose. The dry crust would give way and the machinery sink into the slushy material below.

Dredging Division employees came up with a plan to create the drainage ditches by using small dynamite charges set at close intervals. After surveying the spoil dump areas to determine the best pattern for the drainage ditches, tests were done to determine the proper spacing and depths at which the charges should be placed. After some trial and error—that resulted in a few broken windows—the blasting crew settled into a routine.

In just 3 weeks of work at the Velasquez dump area, located on the west bank of the Canal adjacent to Rodman Naval Station, 21,000 linear feet of ditches were dug with dynamite at a cost of just one dollar per foot. Conventional methods, if they had been feasible, would have taken several months and cost many times more.

But the real measure of success of the project was the immediate increase in drainage of water from the spoil area, which allows for additional amounts of dredging spoil to be deposited there. With one success behind them, the crews moved on to accomplish the same feat at the spoil dump area on Telfer's Island on the Atlantic side.

Dedication Required In Times of Crisis

It is perhaps in times of emergency that the Canal workforce has most effectively demonstrated its dedication to keeping the waterway open to its customers.

In 1970, a herculean effort was mounted to raise the rice and cotton-laden cargo vessel *Sian Yung* after it struck the west bank of Gaillard Cut and sank. It took 2 years of continuous labor before the ship could be raised, by means of cofferdams which floated it to the surface, and towed out to sea for disposal.

Slides, as recent as the 1974 disaster at East Culebra Reach in Gaillard Cut, have required immediate response and 'round-the-clock effort on the part of Canal employees to clear the channel and return it to full service. Indeed,

Dredging Division painters maintain the lighthouse at Isla Grande, a primary landfall for ships approaching the Canal from the north. Built by the French in 1893, the steel structure traces its structural lineage to the Eiffel tower, which opened in 1889 at an exhibition in Paris.

Replacing the softnose at Gatun Locks: Left, at the Maintenance Division shed, employees prepare the wooden form that will hold the concrete for the precast softnose unit. A steel strongback that will check the pressure of the bulging concrete is examined to insure a proper fit, then bolted into place. Center: At high tide the Dredging Division's craneboat "Atlas" lifts the 62-ton unit, one of four pieces of the completed softnose, from Dock 8 to transport it to Gatun. Above: An aerial view of the unit being bolted to the centerwall at Gatun Locks while being supported by the derrick barge "Goliath."

since 1914, slides account for 54 million cubic yards of earth and rock that have been removed from the channel by the Canal's dredging forces.

This year the emergency was not in the channel, but at the locks themselves. In April the transiting oil tanker *Overseas Ohio* hit and sank the approach wall nose fendering, known as the "softnose," at Pedro Miguel Locks. The wooden approach wall fendering at Gatun had been similarly destroyed just 3 months before.

The function of the softnoses is to protect ships from the damage they would incur if they hit the solid concrete centerwall. Without the sofnoses, extra tugs were needed to guide ships safely into and out of the locks, and traffic was slowed as cautious pilots maneuvered past the approach walls. To complicate matters even further, there was already a backlog of ships due to a time of particularly heavy ship traffic.

Although both the softnoses had been damaged previously and plans were being formulated for their eventual replacement, the situation of having the units at each end of Gatun Lake out of commission at the same time meant that action had to be taken immediately. A limit of 6 weeks was set in which two new units were to be fabricated and installed at Pedro Miguel and Gatun.

The job of constructing the four-piece, precast concrete softnose units was done at the Maintenance Division in Balboa by crews working 12 hours a day, 7 days a week. Concrete slabs which would allow for the level construction of the units were cast on the floor of the division's Building 10. Huge wooden forms reinforced with steel into

Above: A Locks Division employee descends 8 feet into a 6-foot lateral culvert in the chamber floor to inspect for cracks in the concrete. Below: The mighty miter gates at rest in Balboa Drydock, where they undergo a complete overhaul in a 2-month period. Right, a gate gets a touchup.

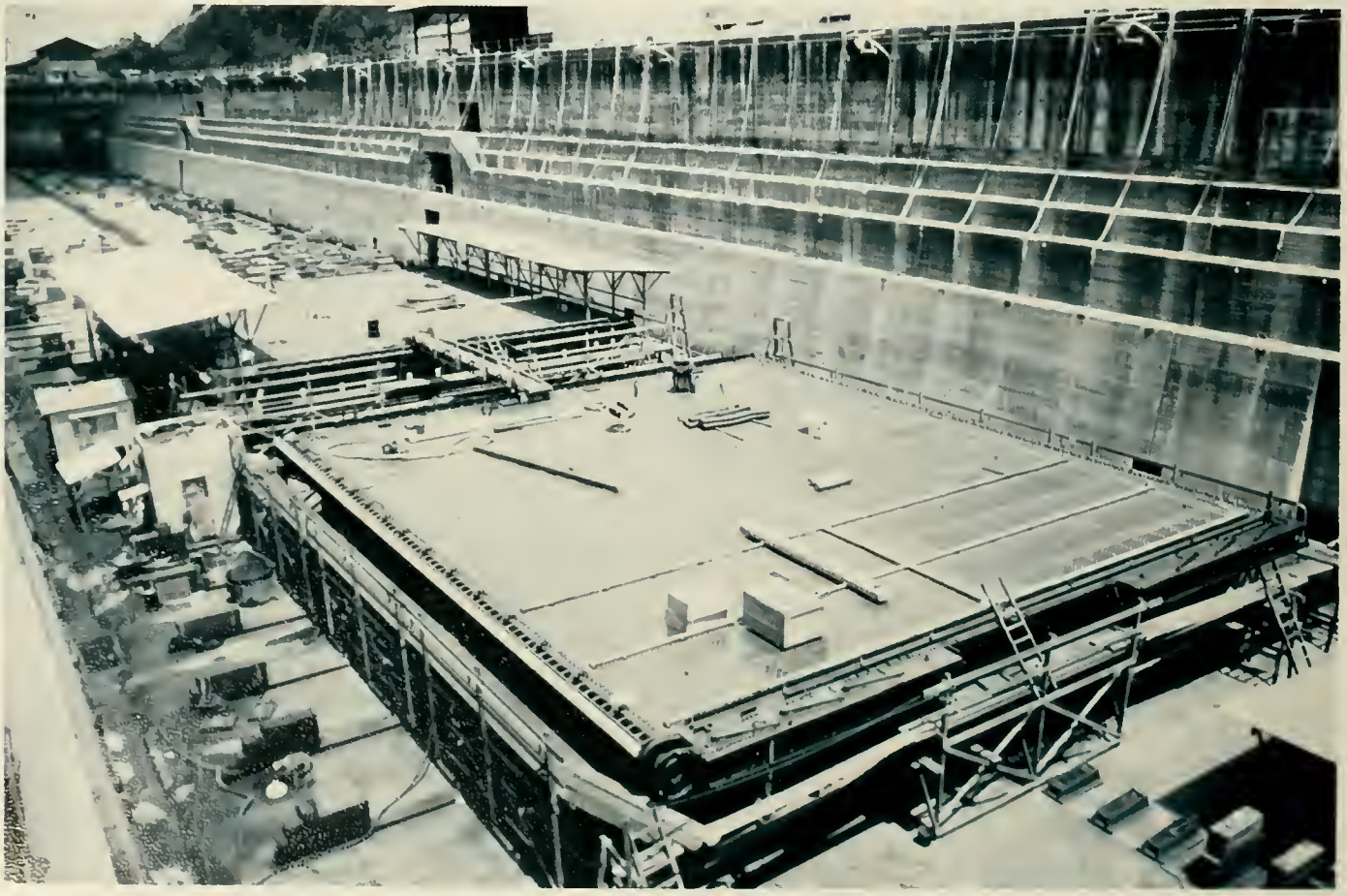
which the concrete was to be poured were built on location by division carpenters. After the poured concrete had set, the forms were stripped away and the rubber fendering put into place on the concrete units.

Three cranes were needed to pick up each of the major pieces of the units, which weighed approximately 62 tons apiece. The first unit was carried by tractor trailer to the east wing wall of Pedro Miguel Locks, where it was placed in position to be loaded aboard the derrick barge *Goliath*.

The second softnose unit was carried by tractor trailer from Building 10 to the dock in Balboa, where the craneboat *Atlas* lifted the four pieces off the dock at high tide for transport to Gatun.

At Pedro Miguel, and later at Gatun, the *Goliath* was used to suspend each of the pieces of the softnose unit as they were bolted into place on the centerwall. The entire job was completed within the scheduled time and the locks returned to full service with only temporary lane outages of a few days.

Once again Canal employees demonstrated their willingness and proved their ability to meet an emergency head on by working long, grueling hours in order to keep the waterway operating at peak efficiency.



From Teddy Bears to Star Wars *Toys* tell a tale

By Vic Canel

"When I was a beggarly boy
and lived in a cellar damp,
I had not a friend nor a toy,
But I had Aladdin's lamp."
—James Russell Lowell

Two empty bottles, tied together at the neck, are pulled through the dirt by a small, barefoot boy.

Anyone who has ever lived in a sugar-producing country, where cane is transported to the mill in *"carretas"* drawn by a team of oxen, knows the little boy is pretending the bottles are his beasts of burden and that he is hauling the product of the day's work from the fields.

Where toys are not available, or simply beyond the means of the parents, children find a way. Dolls carved out of wood or fashioned from rags or empty sacks; old tires or barrel hoops to roll, broomsticks to serve as spirited steeds, or discarded spools to be used for wheels on homemade carts.

Children's imagination, stimulated by their environment, by the events arounds them, by movies, comic books or TV, is not unlike Aladdin's lamp in its ability to conjure up a world of fantasy.

From the earliest times youngsters have entertained themselves through play-acting and make believe, casting themselves or their dolls in the role of famous personages of fiction or real life. And props need never be a problem. With a little ingenuity, a paper or cardboard crown makes the child a king, a dishtowel tied about the neck turns him into Superman and a simple black mask into the Lone Ranger.

But there have always been adults to devise more sophisticated toys, to capitalize on children's fantasies and stimulate their natural inclination to imitate their elders and their activities. Dolls of every description, miniature furniture, china tea sets, cooking utensils and stoves have traditionally been provided for the entertainment of little girls, on the long-established theory that they must inevitably grow up and assume the role of housewives.

Boys have always been encouraged to play with manly things. Building blocks, erector sets, tool kits and chemistry sets, and to participate in physical games to develop athletic prowess.

Since the struggle against segregation of the sexes has succeeded, promotion of playthings is no longer aimed specifically at boys or girls and advertising frequently shows girls playing with toys formerly considered strictly for boys.

Trends in toys are strongly influenced by depressions, wars and technological breakthroughs. After the Panama Canal started operations in 1914 and up until the time the United States entered World War I in 1917, toys sold in the Canal Zone commissaries were of the traditional, peacetime variety, unless you consider lead soldiers, cowboys and indians as bellicose. But there were no toy pistols, rifles or machine guns.

In those days the commissaries sold toys only for a few weeks before Christmas at a temporary location. And since buyers placed their Christmas toy orders during February and March—as they still do today—the first warlike toys didn't appear on commissary shelves until 1919, more than a year after the armistice was signed.

Before the war, a great many of the toys imported for Canal Zone worker's children were German made—handsomely crafted wooden figures and heavy, cast iron cars, trucks and trains. But the supply was cut off at the outbreak of hostilities in Europe.

In 1916, the commissary increased its toy order from the usual $10,000 to $20,000 "to avoid customer complaints about scarcity." That year, a special toy section was set up at the Oil House, near the Balboa substation. The facility went into operation at 8 a.m. on November 20. To accommodate shoppers, the Panama Railroad provided a 3-day shuttle service with 10 round trips a day between Panama and the Oil House with stops at the Tivoli, Bishop's Hallow and Balboa Heights. The fare was 10 cents each way.

Entry of the United States into the war brought a period of austerity to the Canal Zone as efforts were directed at more patriotic concerns than exchanging Christmas gifts. The mood was reflected in a memo in which the Supply Department General Manager advised store managers that Christmas orders would be cut sharply "in line with a recommendation from the Council of National Defense that useless giving at Christmas time be discouraged and that money ordinarily wasted on presents of doubtful utility be saved and invested in Thrift Stamps and War Savings Stamps."

Conceding that "there are times when gift-giving is desirable if not absolutely necessary" the manager's memo went on to suggest a few practical Christmas gifts such as silk neckties, insoles, chemises and ladies' silk bloomers.

Commissaries also offered another way for Canal Zone people to do their bit for the war effort. "Comfort Christmas Boxes could be purchased for about 1.00 as gifts for U.S. or allied troops, packaged and ready for mailing."

But whoever decided on the contents of the gift packages must have assumed that all our troops were addicted to smoking. There were two kinds of cigarettes—Fatima and King Bee, plus a tin of Prince Albert Tobacco, cigarette paper and matches. This was counterbalanced, however, by a tube of tooth paste, a tooth brush and a package of chewing gum.

But even during the war, Canal employees were able to buy imported Christmas trees at their commissaries. In 1917 a small tree sold for 60 cents, a medium tree for 90 cents and a large one for $1.90.

Since the 1920's, Supply Division buyers have gone to New York each year to inspect the new offerings and

Above left: Kenneth Martin's gleeful reaction shows that Teddy Bears remain as popular today as in the days of Teddy Roosevelt for whom they are named. Center: A "Spillway" story asking readers to bring in their antique bears produced a number of venerable ones. Some of the oldest are shown here. Their ages and owners are left to right: More than 60 years, Susan Ovlin; at least 40 years, Sue Follett; and more than 50 years, Pat Mercier. Above right: Tony Alves holds a 40-year-old bear brought in by Winter Collins.

Above: The latest design in Barbie dolls is admired by Michelle Martin. At left: A doll, popular during the American Civil War, is displayed along with a doll, doll heads and dishes from Canal construction days which were dug up by bottle collectors. All are from the collection of Camille Van Hoose.
Below: Deanne Chance holds other antique dolls from this collection.

place the Christmas order for the Panama Canal commissaries.

At the "Toy Center of the World," on New York's Fifth Avenue, the latest novelties of the toy industry are displayed and demonstrated by manufacturer's representatives in floor after floor of showrooms.

One of the early buyers, L. W. McIlvaine, reported after attending the 1929 Toy Fair for a 3-week period that he visited more than 400 permanent and temporary exhibits then housed in three New York hotels. He was most impressed with the novel airplane model kits and predicted they would sell well in the Canal Zone. Just 2 years earlier, Charles A. Lindbergh had made his famous solo flight across the Atlantic and aviation was the coming thing.

Not all the items he bought were successful, however. In November 1930, just before the Christmas toys were to go on sale, there was a terse memo to all store managers instructing them to return "sling shots with a parachute attachment" and that "under no circumstances are they to be permitted to go on sale." The recall was apparently for safety reasons.

The depression saw a slackening off in the toy business. McIlvaine reported after his 1932 trip to the Toy Fair that there were fewer buyers "because of the depression." The economic slump also brought a reduction in the per diem allowed the Panama Canal buyers while on the New York assignment—from $6 to $5 a day.

The evolution of the toy industry, which today is a multibillion dollar business in the United States, has paralleled advances in technology. During the latter part of the 19th century, particularly in Europe, many toys were in small shops by skilled craftsmen who actually made exquisitely detailed scale models of furniture and other items they produced for the adult world.

In the early 1900's and through the 1920's the U.S. toy industry produced a great deal of ingenious action toys. The 1902 Sears catalogue offered a "wind-up automobile with imitation rubber tires for 17 cents." For 29 cents you could get a "Balky Mule" which, when wound up, would move forward about 3 feet and then apparently at the command of the driver" who pulled the reins just at the right time, would kick and start backward. Another item advertised in the same catalogue was a "Bear Bank" which consisted of the figure of an indian aiming a rifle at a grizzly. When a coin was placed on the barrel of the rifle and a lever was pulled, the coin shot into the bear.

The 1927 Sears catalogue is replete with mechanical toys—a car that "goes in every direction, bucks and rears up," a windup airplane that flys around a pylon and even a toy labeled "Panama Pile Driver." It featured a little man in a two-wheel cart that went up and down a steep track to work the hammer with the help of marbles to serve as a counterbalance.

Aside from the general trend toward more sophisticated toys, which has brought the industry from its infancy into the space age, as exemplified by an extensive line of spinoffs from the hit movie "Star Wars," every few years toymakers hit upon an item that really catches on.

One is the yo-yo, which has enjoyed brief periods of popularity in modern times, though it is said to date back to the French Revolution. It was then called "emigrette" after the emigrants who left France in 1789.

The hula hoop, which took the United States by storm in the 1950's and quickly became popular throughout the world, is now beginning to make a comeback.

But perhaps the prize for the most long-lasting popularity would go to the "Barbie" doll which also made its appearance in the 1950's and was quickly followed by a series of companion dolls. As any parent who ever bought a Barbie knows, that is only the beginning. Keeping her and her friends dressed in style and providing them with the innumerable accessories the manufacturer so thoughtfully makes available, is a continuing investment. There is even a poodle to go with a glamorized version of Barbie, called Fashion Queen Barbie. The poodle, of course, has its own accessories—a collar and chain, corduroy jacket and even a net tutu.

Dolls that "talk" when you pull a string have been around for some time. Mattel's most erudite talking doll, a number called Charmin Chatty, comes with 5 records and 10 sides and a repertoire of 120 different phrases. The doll is available in costumes of different lands and there are records in French, German, Italian, Spanish, Russian, Japanese and English—with a British accent, if you prefer.

The age of electronics has ushered in a whole new line of playthings for children and adults—tennis, football and other games which are played on a television screen. Latest thing on the market is a computerized football game in which players try to outguess the previously programmed game strategy.

Many of the new electronic toys, pocket computers and other sophisticated items were included in this year's commissary Christmas sale—the last before the facilities cease operations on October 1, 1979. But a good portion of the half million dollar order was for traditional toys—a large variety of dolls and stuffed animals for the preschool trade, Disney characters and the perennial favorite, the Teddy Bear, which took its name from the 26th president of the United States and came into being just about the time the Canal construction was getting started.

Center above: Toys made by patients at the Canal Zone Mental Health Clinic in 1920 reflect the style of cars as well as the type of toys popular at that time.
Above: Wooden toys from many lands include marching guards from Denmark; nutcrackers from Germany; a balancing man from Brazil; handcarved toys with moveable parts from Russia; and a colorfully clad merchant from Egypt.

LOW HANGING CLOUDS, lush tropical growth and ships moving through placid waters create a scene of serene beauty, but to the trained observer this is more than a pretty picture.

This aerial view of the Panama Canal above Gamboa Reach looking northwest has many graphic examples of the maintenance and improvement works so indispensable to the operation of the waterway.

A few hundred feet to the north of the smaller of the two transiting vessels, one can see a tug pushing barges loaded with dredged material out to disposal areas.

The muddy water, bottom center of the photo, was caused by the operation of the Dredge *Cascadas* in Gamboa Reach. The excavation, which is evident on the two small islands to the right of the channel, is the initial work toward complete removal of the islands to widen and realign the Mamei Curve, a major Canal improvement project.

Dark patches seen on each side of the channel are growths of the submerged aquatic plant hydrilla. The light green area in the lower left corner is an infestation of the floating water plant pistia. Encroachment of this pest plant on the shipping channel is being prevented here by a floating log boom which bellies out toward the channel between the two islands in the left corner. If plants such as this and the floating water hyacinth were allowed to infest the channel, they could be sucked into the water intakes of ships and cause serious problems. In the past 2 years the Panama Canal Company has intensified its efforts to eliminate aquatic weeds.

One of the constant maintenance problems in the Canal is keeping the tropical vegetation from inundating navigational aids. Near the lower right of the photo, one can see the brush cut away from the Canal side of a lighthouse to permit the pilots to see the light which guides ships through Gamboa Reach on the east sailing range.

Festive fare for family and friends at *Christmas*

By Vannie Jones

THE CHRISTMAS SEASON DINner table provides a splendid opportunity for expressing affection and hospitality. Making holiday meals pleasing and festive occasions is a rewarding experience whether the objects of your affection are family members or friends coming in for a holiday party.

Why not let the spirit of caring and sharing permeate your kitchen and dining room this season? You can start by converting "tedious kitchen chores" into joyful "labors of love." Try mingling your chopping, sifting, stirring and measuring with pleasant thoughts of those who will be sitting at your table. Consider the tastes of every guests (even little Susie and Johnnie) and plan something to delight each one. As you prepare your dinner table, anticipate the warm fellowship to be shared with loved ones when your meal is finally served.

During such busy days, it is unlikely that you will want to undertake a gourmet dinner, but by choosing recipes that are family favorites and simple "do ahead" dishes, holiday meals can be leisurely and fun for all who participate in them. Using some of the many delicious local food items can make your Christmas in the tropics even more excitingly different.

Some of the recipes appearing on these pages are old family favorites, others are very special because they come from friends who enjoy sharing good things.

BEST WISHES FOR HAPPY HOLIDAY DINING . . .

Minted Fresh Fruit

Cut favorite fresh fruits into bite-sized pieces. Melon, pineapple, papaya, oranges, apples, grapes, strawberries, etc.

Place on bed of fresh lettuce.

Top with Minted Lime Dressing (below):

3 Tablespoons mint jelly (commercial apple-mint jelly will do)
2 Tablespoons honey
Grated peel and juice of 1 lime
Juice of 1 lemon

Mix ingredients together and chill. Pour over fruit just before serving.

(If you have a shelf free in your freezer, put these servings into freezer for about 5 minutes before serving.)

Lobster Imperial (with Rice)

3 Pounds cooked lobster (chopped into bite-sized pieces)

Sauce:

1½ Cup minced onion—Sauteed in 1 stick margarine or butter until tender
1 Cup minced green pepper
5 Tablespoons flour—Stir into onion/pepper mixture
3 Cups chicken bouillon—Stir into onion/pepper mixture
1 to 2 cups milk—Add gradually until sauce is medium thick
1 Teaspoon salt
Dash of pepper
1 Teaspoon Worcestershire or Soy Sauce
1 Chopped hard boiled egg

Add and stir together.

Place 3 cups cooked rice in casserole. Add lobster. Cover with sauce.

Before baking sprinkle on seasoned bread crumbs, grated parmesan cheese and dot generously with butter.

Heat in oven until hot all the way through—about 30 minute at 350°.

Serves 8.

Corn-Cheese Casserole

Margarine
3 Cups (about 6 ears) fresh-cut corn
2 Tablespoons finely chopped onion
½ Teaspoon salt
¼ Teaspoon pepper
1 Cup shredded Swiss cheese
½ Cup evaporated milk or half-and-half

Dot bottom of shallow 1½-quart baking dish with 1½ tablespoons margarine. Combine next 4 ingredients with ½ cup shredded cheese and pour into baking dish. Top with remaining cheese, then dot with 1½ tablespoons margarine. Drizzle with evaporated milk. Bake in preheated 350° F. oven 25 minutes, or until corn is tender. Makes 6 servings.

Western Coleslaw

1 Medium head cabbage, shredded
2 Onions—Sliced thin and placed in layers between cabbage
¾ Cup sugar—Sprinkle on top
1 Tablespoon salt
¾ Cup salad oil
1 Teaspoon dry mustard
1 Teaspoon celery seed
1 Cup vinegar

Stir while cooking to a rolling boil. Pour dressing over cabbage and cover. Do not stir. Put in refrigerator to cool at least 4 hours before serving.

Cranberry Relish Salad

1 Medium thin-skinned orange
1 Medium apple
2 Cups fresh or frozen cranberries
1¼ Cups sugar
1 Package (3 ounces) orange or lemon flavor gelatin
2 Envelopes unflavored gelatin
Grated rind and juice of 1 lemon
Spiced Mandarin-orange wedge (optional)

Cut orange and apple in eighths and remove seeds. Force with cranberries through fine blade of food chopper. Add sugar, mix well and refrigerate a few hours, stirring occasionally to dissolve sugar. Prepare orange gelatin according to package directions. Soften unflavored gelatin in one cup cold water. Put over low heat, stirring until dissolved. Add to orange gelatin with lemon rind and juice. Chill until slightly thickened. Fold in cranberry mixture, mix well and pour into 6-cup ring mold. Chill until firm. Unmold and fill center with orange wedges, if desired. Makes 10 to 12 servings.

Spiced Mandarin-orange wedges: Drain syrup from one can (11 ounces) mandarin-orange wedges. Put in saucepan with 2 tablespoons sugar, dash of ginger and 12 whole cloves. Simmer, uncovered, until reduced one half. Cool and pour over orange wedges. Chill overnight. Makes about one cup.

NOTE: Recipe can be doubled.

Seashells, driftwood and tropical flowers were used to create an imaginative centerpiece for this holiday dinner table. Recipes for all the dishes appear on this page.

Gifts from the kitchen: to enjoy on the spot or to send home with friends

Cream Cheese Pie

2 Cups graham cracker crumbs
½ Cup sugar
½ Cup melted butter
½ Cup chopped nuts
Mix together and press into bottom of 8 x 10-inch pan or large pie plate
18 Ounce cream cheese (softened)
2 Eggs
¾ Cup sugar
1 Teaspoon vanilla
¼ Cup evaporated milk

Blend together and put in crust. Bake at 375° for 20 minutes.

Optional topping: Strawberry or cherry pie filling. Mix sour cream and dream whip for decoration.

Orange Slice-Date Nut Cake

2 Cups sugar
1 Cup margarine
Cream together
4 Eggs
Add and mix well (one at a time)
2 Boxes dates, chopped
1½ Cups buttermilk
Put in bowl together, mix with fork
4 Cups flour
1 Teaspoon soda
1 Teaspoon salt
Add to sugar-butter mixture, along with dates and orange slices
1 Large bag orange slices candy chopped and sprinkled with a bit of flour
2 Cups chopped nuts
1 Teaspoon vanilla
1 Can coconut (optional)

Bake in greased and floured loaf pans at 275° for 2½ to 3 hours.

New Orleans Pecan Pralines

3 Cups sugar
1 Cup buttermilk
3 Tablespoon white corn syrup
1 Teaspoon baking soda
½ Teaspoon salt

Combine in large pan. Cook without stirring to 150° on candy thermometer. Add ½ stick butter, stir, then cook on medium heat to soft ball stage, on candy thermometer (236°). Remove from heat, add 1 teaspoon vanilla. Beat with spoon until it just begins to thicken. Add 2 to 3 cups broken pecans. Drop by teaspoonsful onto wax paper.

Shrimp Toasts (Ya Do Shi)

1 Pound minced uncooked shrimp
½ Cup finely chopped onion
1 Tablespoon minced green pepper
1 Egg slightly beaten
1 Tablespoon cornstarch
1 Teaspoon salt
½ Teaspoon sugar
¼ Teaspoon pepper

Mix together and spread on bread squares with fork. Press down so it does not come off during frying.

Trim crusts from loaf of "heavy" bread. Cut slices in 4 squares. Allow to "dry out" but not get "hard."

After shrimp mixture is on bread, sprinkle bread crumbs on top, then fry (shrimp down first) in *hot* oil (1-2 minutes). Then turn and fry bread side down. Remove to paper towels and gently pat tops with paper towel to remove excess oil.

(Freeze or store in refrigerator. Reheat in 325° oven 15-20 minutes just before serving.)

Stevens Circle is the town *Square*

By Dolores E. Suisman

TO A CANAL OLDTIMER, IT'S just the little park in front of the clubhouse. To a Canal history buff, it's a tribute to John F. Stevens. To everyone else, Canal Zone residents and tourists alike, it's a colorful mini bazar of local arts and crafts.

Officially, it's called Stevens Circle, in honor of the outstanding engineer and able administrator who is credited with getting the Canal construction project on the right track.

But it's not really a circle anymore. And it's not square, though over the years it has been called Town Square, along with such other names as Clubhouse Plaza, Balboa Park, Balboa Circle and Balboa Traffic Circle.

The little park between the post office and the commissary has seen its share of history. As far as anyone can remember, it has existed from the time the townsite of Balboa came into being as permanent headquarters for the Canal organization in 1912.

It was there before they built the original Balboa Clubhouse which was torn down in 1973 to make way for the modern cafeteria that now faces the circle. A long-retired schoolteacher sharing her bench and her memories with a stranger said at the time: "I sat right here and watched them put up that clubhouse, and now I'm sitting here watching them tear it down."

Aside from its benches, the original little park was as different from the Stevens Circle of today as the old wooden clubhouse building (moved in 1914 from the construction-day town-

A monument to John F. Stevens stands in the middle of the Circle and in the background is the Balboa Post Office.

site of Empire) was from its concrete-and-glass, air-conditioned modern counterpart.

At the heart of Balboa townsite, on the 1913 plans, was a square Clubhouse Plaza. And, sure enough, the park shown in a photograph of the 1919 Fourth of July celebration was square.

By 1939, the park had definitely changed its image. It was now a circle, and according to one source, there were "four beautiful trees in the park across the street from the Balboa Clubhouse that people sit under when the weather permits." The same writer, objecting that "the young men about town carry the benches and place them wherever they desire especially around the flagpole," suggested that "concrete seats be built around each tree and also the flagpole."

Perhaps his suggestion was taken, for by the 1960's there were not only flagpole and mahogany trees, but also concrete benches, concrete planters, and paved walks.

Many of the handicrafts of Panama are on sale at Stevens' Circle but the colorful molas made by the Cunas and the green, amber, and blue bottles, some of which date back to Gold Rush days or earlier, are among the most popular items.

It was in 1962 that the circle acquired its commemorative status. The little park underwent a complete facelift in preparation for the dedication ceremonies that would officially name it in honor of John F. Stevens.

Decorative lighting was installed, and the middle of the park was raised and walled with brick. There officials unveiled with due pomp and ceremony, a gleaming white three-sided memorial bearing Goethal's tribute to the hard-driving, gifted engineer who preceded him: "The Canal is his monument."

One can imagine Stevens accepting the memorial that bears his name. But what would he make of the county fair atmosphere that has changed Stevens Circle from a proper little park into an artsy-crafty miniature version of Paris' Montmartre?

It's hard to say just when the artists, jewelry makers, metal workers, leather workers, and artisans of all sorts decided the park was an ideal place to display and sell their wares.

First, non-profit organizations—the Gem and Mineral Society and Canal Zone Bottle Collectors Association—held their annual bazaar there. Scouts, boosters for school ball teams, and church groups held bake sales.

Then came people with plants, homemade macramé items, cookbooks—even litters of puppies or kittens—to set up tables and attract shoppers wending their way from post office to commissary and back.

It wasn't long before the non-profit organizations were joined by merchants of all types and Stevens Circle became a riotous confusion of Cuna indian molas, Colombian wall hangings, Costa Rican rocking chairs, Mexican silver, and even native birds and monkeys.

Early in 1977, Stevens Circle was back on the drawing board—that of a traffic engineer, this time—and the park became neither a true circle nor a square but a circle with three arms.

While construction was in progress, selling was not allowed. At that time, it was decided to issue peddlers' licenses only to artists or craftsmen who would sell what they made.

Space was parceled out in the 125-foot-in-diameter park—72 square feet of ground or table space or 12 feet of wall space per "peddler." Some semblance of order was restored, and with browsing room available again, the circle became a popular stop for shoppers looking for an unusual or last minute gift.

One wanders past and around the great variety of handicrafts. Wrought iron plant stands, leather sandals, gingham beach hats, belts with silver buckles, leather dice cups, flower pots, soapstone animals, purses, pillows, carved-out coins, molas, bateas, oil rubbings, and jewelry of every kind—coral, jade, tiger eye or bone pins, bracelets, necklaces, charms and rings.

One begins to wonder who these handicraft "peddlers" are.

Only two other people were selling in the circle in 1973, when Ken Myers moved his artwork from the commissary steps to the park. One was a Cuna indian, he remembers.

Now the Cuna make up the largest contingent of the circle's merchants. One, Alberto Andreve, says he sells 50 or more molas a month. But he quickly adds that it takes a woman back on the San Blas islands 3 months to make each one.

Fulvia Rodriguez, who is not a Cuna but the daughter of missionary parents, grew up on the island of Alligandí and learned the art of making molas. Now she sits in the park stitching special orders. A recent one carried the legend "Don – Balboa High School" and an outline of the school.

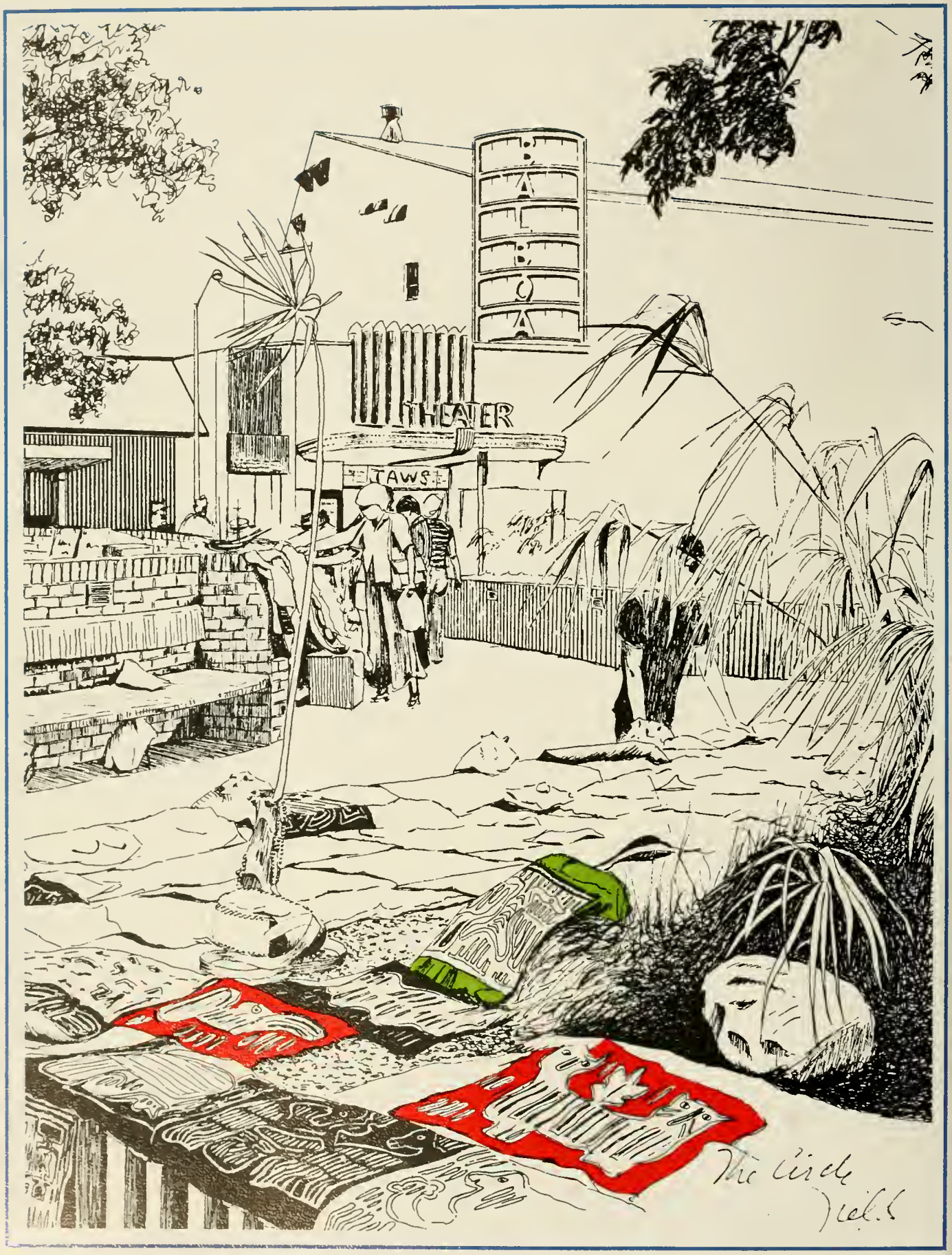
An Ecuadorian, José Antonio Tiban, travels each Sunday to market places in the interior, seeking out the soapstone figures, clay flower pots and other native crafts that he and his daughter sell in the circle.

Probably the best-known peddlers are Ken Myers and Chrisse Harawaka. As Stevens Circle oldtimers, they hold seven-day-a-week licenses. Their fellow-peddlers are alloted space only 2 days a week.

Ken studied art and jewelry-making at Canal Zone College before attempting the oil rubbings that have become so popular. To make these exotic art works, Myers stretches a piece of cloth over sculptured stones from Panama, Guatemala and Mexico, and daubs oil paint gently over the surface until the high spots mark the cloth. He likens the technique to putting a piece of paper over a quarter and pencil-shading until the image of the coin appears.

Steven Circle won't hold Ken much longer. After an exhibition in Panama, he plans to go to art school in California and then perhaps fulfill his dream: to create a wall-sized oil rubbing.

Even those who don't know her name recognize the little blond in the straw hat who sits in the place of honor at the foot of the Prado.


THEATER
TAWS

Chrisse Harawaka already had her art degree when she arrived in Panama from Delaware for a vacation that included a side trip to the San Blas Islands. On that trip to the islands she met the Canal Zone boy she would return to marry a year later. She and her husband, an Army employee, have lived in Panama ever since. Both learned the "lost wax" process from former Canal Zone resident and huaca expert Neville Harte.

Chrisse makes the huacas herself. She also designs and makes necklaces.

Today, Chrisse and Kent set out their displays on what was a great sea of mud when John F. Stevens left the Isthmus in 1907. As hard as it would be for these young, vital artists to envision the starkness of the Canal Zone Stevens knew, it surely would be more difficult for the Canal builder to understand the carnival atmosphere of that part of the Zone dedicated to him. But then again, in his day it was mostly hard work and there were very few amenities other than those provided at the clubhouses run by the YMCA.

Few of the shoppers and probably fewer of the peddlers one sees at the circle today fully realize the merits of the man for whom it was named. It was dedicated in his honor on October 13, 1962, which coincidentally was a Saturday and is now the day the peddlers turn out en masse.

When he resigned as chief engineer of the Canal construction project in 1907 he—and everyone else—was fully convinced that the success of the undertaking was assured.

Ten thousand people turned out to give him the biggest send-off the Canal Zone had ever witnessed.

At left: This sketch of Stevens' Circle, by Maj. Jerry Fields, of the U.S. Army, is among the many works of art available at the Circle.
At top: Particularly popular with nostalgia minded local shoppers are plaques and pen sets fashioned by Steve Bolt from Panama Railroad rails and spikes.
Above: Unique necklaces created from shells, coins, shark's teeth and other native materials are offered by several peddlers.

Preservation of *Watershed* Vital to Canal Operations

By Willie K. Friar

FEW PEOPLE VIEWING THE blue green waters of Gatun Lake or Madden Lake are aware that Gatun is not just a convenient part of the waterway across the Isthmus or that Madden is not merely a readily accessible recreation area.

Actually Gatun and Madden Lakes are vital parts of the operation of the Panama Canal. The water for lockages, hydroelectric power, and for the water systems of the Canal Zone and the cities of Panama and Colon is supplied by runoff from the Gatun Lake watershed with Madden and Gatun Lakes serving as storage and flood control facilities.

Most of this watershed of 1,259 square miles on which the maintenance and the purity of the lakes depend lies in the Republic of Panama.

At present, the conservation of forest resources and the protection of the watershed are severely hindered by the rapid and alarming population growth in the marginal urban areas of the cities of Panama and Colon; the movement of unskilled labor from the interior to the cities; the high rate of unemployment and continual spiraling inflation. Constant burnings during the dry season to prepare land for small agricultural efforts or for pasture land has decimated much of the forest within the Gatun Lake watershed. As soon as the trees are removed, the tropical soils, which support the jungle growth, quickly dry out from exposure to the intense sun and are very susceptible to sheet, gully and landslide erosion.

Most of the western parts of the Republic of Panama have been extensively deforested while the forest areas of the Canal Zone, in comparison, remain relatively undisturbed due to the restrictions on access by the public to the Canal Zone watershed and military areas. From a helicopter, the Canal Zone appears as a carefully conserved island of forest in the midst of a generally cleared countryside.

Nevertheless such activities as timber cutting, slash-and-burn agriculture, and tree poaching for lumber remain a constant problem in the Canal Zone.

Although fires have little effect on the untouched tropical forest where no cutting has been permitted, the edges of the jungle are vulnerable to repeated burnings during the dry months and the forest gradually retreats until only sawgrass and other undesirable grasses continue to grow. This process can be observed by anyone driving through the Madden Forest Preserve. As soon as one leaves the protected area, there are only sawgrass and large patches of exposed bright red soil with signs of continued erosion.

The tropical forest, once invaded and destroyed, does not recover as many people believe. A dense jungle growth does begin immediately, but it is only scrubby, stunted vegetation and not the same as the old forest with the large sturdy branches and the lush growth of leaves and bromeliads, which are typical of very old trees. Actually, the process of regrowth is so slow that, for all practical purposes, once the jungle forest is destroyed it is abandoned permanently by the native animals and birds.

The value of the forested areas of the Canal Zone cannot be overestimated.

At left: A favorite scene with photographers is the waterfall beside the highway that passes through the Madden Forest Preserve.

Below: The verdant tropical forest can be seen close-up from the highway which cuts through Madden Forest.

From a helicopter, erosion caused by slash-and-burn agricultural methods is readily apparent as in this section of Madden Forest. Below: Corn grows in an area of Madden Forest which has been cleared by subsistence farmers who burned the trees.

OCEANGOING COMMERCIAL TRANSITS BY NATIONALITY

Nationality	9 Months FY 1978 No. of Transits	9 Months FY 1978 Long Tons Cargo	9 Months FY 1977 No. of Transits	9 Months FY 1977 Long Tons Cargo
British	805	7,385,602	820	7,210,800
Chilean	132	1,318,082	149	1,131,478
Chinese, Nationalist	85	1,103,220	84	1,110,885
Colombian	124	850,727	128	242,049
Cuban	72	448,808	50	238,747
Danish	208	1,893,867	233	1,864,664
Ecuadorian	142	1,183,656	134	1,196,378
French	92	842,382	106	830,280
German, West	420	2,988,774	434	2,935,295
Greek	977	12,862,124	873	13,240,105
Italian	197	1,247,373	162	859,377
Japanese	663	5,804,809	681	7,050,725
Liberian	1,359	21,407,777	1,395	22,650,180
Netherlands	132	946,056	171	1,079,236
Norwegian	384	5,431,095	450	6,706,404
Panamanian	711	5,529,674	829	5,975,905
Peruvian	160	1,553,176	136	1,504,925
Polish	64	407,885	58	445,752
Singaporean	115	1,157,144	78	763,414
South Korean	77	873,521	46	272,023
Soviet	183	1,053,420	150	984,519
Spanish	82	166,648	64	204,028
Swedish	193	1,871,157	199	1,947,451
United States	1,187	17,401,015	759	6,358,610
Yugoslavian	100	833,531	75	589,925
All other	690	6,025,050	658	5,197,508
Total	9,354	102,586,573	8,922	92,590,663

OCEANGOING COMMERCIAL TRANSITS OVER PRINCIPAL TRADE ROUTES

Trade route	9 Months FY 1978	9 Months FY 1977
East Coast United States—Asia	2,093	2,055
East Coast United States—West Coast South America	953	782
Europe—West Coast South America	840	852
East Coast United States—West Coast Central America	868	438
Europe—West Coast United States/Canada	697	661
South American Intercoastal	306	328
U.S. Intercoastal (including Alaska and Hawaii)	340	305
East Coast United States/Canada—Oceania	255	226
Europe—Oceania	221	317
East Coast Canada—Asia	216	205
All other	2,565	2,753
Total	9,354	8,922

OCEANGOING COMMERCIAL TRAFFIC BY MONTHS

Month	Transits FY 1978	Transits FY 1977	Tolls (In thousands of dollars)1 FY 1978	Tolls (In thousands of dollars)1 FY 1977
October	1,028	976	$14,995	$11,488
November	947	968	14,280	12,777
December	1,002	943	14,848	13,887
January	1,000	983	14,433	13,818
February	942	916	14,199	12,978
March	1,135	1,057	17,022	14,064
April	1,067	1,060	16,960	14,947
May	1,142	1,048	18,176	14,601
June	1,091	971	17,130	13,456
Total	9,354	8,922	$142,043	$122,016

1 Before deduction of any operating expenses.

Statistics compiled by Executive Planning Staff.

PANAMA CANAL TRAFFIC

	9 Months 1978	9 Months 1977
TRANSITS (Oceangoing)		
Commercial	9,354	8,922
U.S. Government	70	63
Free	4	10
Total	9,428	8,995
TOLLS1		
Commercial	$142,087,840	$122,061,026
U.S. Government	653,236	606,975
Total	$142,741,076	$122,668,001
CARGO2 (Oceangoing)		
Commercial	102,586,573	92,590,663
U.S. Government	237,262	169,444
Free		
Total	102,823,835	92,760,107

1Includes tolls on all vessels, oceangoing and small.

2Cargo figures are in long tons.

Statistics compiled by Executive Planning Staff.

It is the most extensive, readily accesible humid forest available for ecological study in all of Central America, in addition to protecting the watershed of the Canal. The continued preservation of the forest and the watershed are such important elements of the environment that they have been made a part of the new treaty between the United States and the Republic of Panama.

However, despite careful patroling of the forested areas in the Zone, during the past few years a significant increase of forest degradation and slash-and-burn type agriculture activities have been observed along the common Canal Zone/Republic of Panama border and throughout the watershed. Most of the encroachment and deforestation presently occuring in this area is done by small groups of subsistence farmers, most of whom are engaged in growing corn and rice. They live near the Canal Zone border or have settled inside the boundary and are cutting down the trees and burning vegetation to clear land for farming.

The trees and various types of natural vegetation, which give the tropical landscape its originality, have a chance to survive on the Isthmus only in preserves and protected areas inside the Canal Zone, such as Pipeline Road, Madden Forest, and Ancon Hill.

The successful establishment of a working relationship for bilateral participation and action to protect the Canal watershed is of great importance to the Government of Panama since most of the forested areas within the present Canal Zone will in the future be under its control. Most of the forested areas will become a part of any resource conservation program established by Panama in its long term development

PRINCIPAL COMMODITIES SHIPPED THROUGH THE CANAL

(in long tons)

Atlantic to Pacific

Commodity	9 Months FY 1978	9 Months FY 1977
Petroleum and products	8,598,879	11,220,342
Corn	7,222,263	7,958,544
Coal and coke	6,092,295	9,675,469
Soybeans	4,559,001	3,588,894
Phosphate	3,347,458	2,838,691
Wheat	2,321,257	1,727,837
Sorghum	1,888,129	1,988,742
Chemicals and petroleum chemicals	1,462,784	1,208,324
Manufactures of iron and steel	1,422,356	559,519
Metal, scrap	1,345,369	922,848
Fertilizers, unclassified	1,019,713	832,756
Ores, various	1,019,124	1,020,296
Sugar	868,769	418,004
Ammonium compounds	495,031	341,408
Caustic soda	422,528	392,547
All other	7,117,785	7,198,956
Total	49,202,741	51,893,177

Pacific to Atlantic

Commodity	9 Months FY 1978	9 Months FY 1977
Petroleum and products	19,966,480	6,183,897
Manufactures of iron and steel	5,525,362	5,849,969
Lumber and products	3,819,331	3,710,125
Ores, various	3,582,732	4,225,445
Sugar	1,966,913	2,040,818
Coal and coke	1,468,033	362,264
Food in refrigeration (excluding bananas)	1,411,546	1,408,297
Bananas	1,247,952	1,190,348
Wood pulp	1,240,677	1,387,604
Metals, various	1,012,545	1,049,831
Wheat	880,221	579,637
Autos, trucks, and accessories	862,773	643,507
Sulfur	839,190	959,229
Molasses	571,182	474,829
Paper and paper products	546,360	449,203
All other	8,442,535	10,182,483
Total	53,383,832	40,697,486

CANAL TRANSITS—COMMERCIAL AND U.S. GOVERNMENT

	9 Months FY 1978			9 Months FY 1977
	Atlantic to Pacific	Pacific to Atlantic	Total	
Commercial:				
Oceangoing	4,731	4,623	9,354	8,922
Small[1]	382	219	601	616
Total	5,113	4,842	9,955	9,538
U.S. Government:				
Oceangoing	37	33	70	63
Small[1]	77	62	139	221
Total	114	95	209	284
Grand Total	5,227	4,937	10,164	9,822

1 Vessels under 300 net tons, Panama Canal measurement, or under 500 displacement tons.

Statistics compiled by the Executive Planning Staff.

strategy to protect the quality of the natural environment..

A plan of action has been set up to eliminate slash-and-burn type agriculture during the next 12 months. The implementation of this plan would establish basic guidelines which the Government of Panama will be able to continue when these forest areas come under its control after the new treaty between the United States and Panama goes into effect. With the financial assistance, technical training and institutional buildup that the proposed U.S. AID (Agency for International Development) watershed management project is to provide Panama's Renewable Natural Resources Conservation Agency (RENARE), the Government of Panama will be able to play a strong role in conserving natural resources.

A biological crossroads of North and South America containing plants and animals from both continents, Panama is considered by some scientists to be the most biologically diverse country in the world for its size. Here one can find within a small easily accessible area, an enormous variety of plant, bird, and animal life; but conservation of this unique environment is becoming a more and more difficult problem as man's impact on the limited natural forest resources becomes increasingly stronger.

The areas that have been the most adversely affected by slash-and-burn agriculture are the Chiva-Chiva area, Madden Forest Preserve, the northeast bank of the Canal along Pipeline Road (well-known as a bird and animal sanctuary), and the west bank of the Canal.

Plans for the future include increased aerial and ground surveillance, and strengthened communication with the Government of Panama. Also planned is an increased joint educational campaign using the Panama radio, television and news media to stress the importance of preservation of the natural resources of the Isthmus.

Christmas on the Isthmus means colorful molas with holiday motifs made by the Cuna Indians. The one at right, an intricately stitched horn of plenty, is one of the favorite designs.

COUNTY GALWAY
NEW ORLEANS LA

Date Due

Due	Returned	Due	Returned
MAY 1 1 1987	APR 1 6 1987		
AUG 2 0 1991	AUG 0 7 1991		
MAR 1 6 1992			
JUL 2 3 1992			
AUG 0 5 1992	C 0 4 1992		
AUG 2 3 1993	AUG 0 9 1993		

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